IN THE CLAIMS:

1. (currently amended) A method for routing packets on an array of N processors connected in a nearest neighbor configuration, comprising the steps of:

for each row and column of the array, connecting unused outputs of an end processor to corresponding unused inputs of the same end processor so as to create a wrapped path at each end processor of the array; and

for each axis required to directly route a packet from a source to a destination processor,

determining whether a result of directly sending a packet from an initial processor to a target processor is less than or greater than N/2 moves, respectively, the initial processor being the source processor in a first axis, the target processor being the destination processor in a last axis;

directly sending the packet, when the result is less than N/2 moves; and

indirectly sending the packet so as to follow at least one of the wrapped paths, when the result is greater than N/2 moves, wherein the packet is sent to one of the end processors and routed around the wrapped path of the one end processor to change the direction of the packet's propagation towards the destination processor.

2. (previously presented) The method according to claim 1, wherein packets are routed along the x-axis, and then the y-axis.

3. (original) The method according to claim 1, further comprising the step of randomly sending the packet using either of said sending steps, when the result is equal to N/2 moves and N is an even number.

4. (previously presented) The method according to claim 1, wherein said indirectly sending step comprises the step of initially sending the packet in an opposing direction with respect to the target processor, following the wrapped

path of a first end processor, proceeding through the array of processors toward a second end processor, following the wrapped path of the second end processor, and proceeding to the target processor.

5. (currently amended) The method according to claim 1, further comprising the step of the target processor receiving the packet upon a second pass thereby, when the packet is sent indirectly and the packet follows at least one wrapped path.

6. (original) The method according to claim 1, further comprising the step of adding a 0-bit or a 1-bit to the packet, depending on whether the packet is to be injected into a corresponding axis in the positive or negative direction, respectively.

7. (original) The method according to claim 6, wherein the packet can only be removed when traveling in the positive direction, if the 0-bit is added thereto.

8. (original) The method according to claim 6, wherein the packet can only be removed when traveling in the negative direction, if the 1-bit is added thereto.

9. (original) The method according to claim 6, further comprising the step of placing the packet in a first queue or a second queue, depending on whether the 0-bit or the 1-bit is added to the packet, respectively.

10-21. (canceled)

22. (new) A method for routing packets on an array of N processors connected in a nearest neighbor configuration, comprising the steps of:

for each row and column of the array having two end processors, connecting unused outputs of an end processor to corresponding unused inputs

of the same end processor so as to create a wrapped path at each end processor of the array; and

for each axis required to directly route a packet from a source to a destination processor,

determining whether an estimated result of directly sending a packet from an initial processor to a target processor is less than or greater than N/2 moves, respectively, the initial processor being the source processor in a first axis, the target processor being the destination processor in a last axis;

directly sending the packet from the initial processor to the destination processor, when the result is less than N/2 moves; and

indirectly sending the packet when the result is greater than N/2 moves to an end processor located in a direction opposite to a direct path between the initial processor and the destination processor and then routing the packet at the end processor around the wrapped path to be sent to the destination processor in the direct path's direction.